

*I think replaced by
ASTM D2475-67
latest ↑*

Commercial Standard 185-52

WOOL FELT

A RECORDED VOLUNTARY STANDARD OF THE TRADE

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Industry and Commerce, Bureau of Foreign and Domestic Commerce, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office and the Department of Commerce field offices.

UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

185-52

WOOL FELT

A RECOMMENDED VOLUNTARY STANDARD OF THE TRADE

COMMUNITY STANDARDS

Standardized Wool Felt Specifications and Community Standards are developed by manufacturers, distributors, and users in cooperation with the Community Standards Division of the Office of Industry and Commerce, and with the National Bureau of Standards.



The purpose of Standardized Wool Felt Specifications and Community Standards is to establish uniformity of standards of quality for wool felt and to provide a basis for the selection of wool felt for use in the manufacture of wool felt products. The purpose of Community Standards is to provide a basis for the selection of wool felt for use in the manufacture of wool felt products.

U. S. DEPARTMENT OF COMMERCE

CHARLES SAWYER, Secretary

BUREAU OF FOREIGN AND DOMESTIC

COMMERCE

Office of Industry and Commerce

H. B. McCox, Director

A Standardized Wool Felt Specification and Community Standards are developed by manufacturers, distributors, and users in cooperation with the Community Standards Division of the Office of Industry and Commerce, and with the National Bureau of Standards.

IN COOPERATION WITH

NATIONAL BUREAU OF STANDARDS

A. V. ASTIN, DIRECTOR

The purpose of Standardized Wool Felt Specifications and Community Standards is to establish uniformity of standards of quality for wool felt and to provide a basis for the selection of wool felt for use in the manufacture of wool felt products. The purpose of Community Standards is to provide a basis for the selection of wool felt for use in the manufacture of wool felt products.

UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

WOOL FELT

[Effective Date, February 21, 1952]

1. PURPOSE

1.1 The purpose of this commercial standard is to provide standards for wool felts for the guidance of producers, distributors, and users in order to eliminate confusion resulting from a diversity of types.

2. SCOPE

2.1 This standard is applicable to types of felt put up in roll form and suitable for mechanical use, known as mechanical roll felt; to sheet felts which are customarily fabricated individually from square batts of carded stock; and to roll felts for the apparel and decorative trades. The standard includes thicknesses and weights, with permissible tolerances, chemical and physical requirements, and methods of test. It does not include punched, woven, synthetically bonded, stitched, quilted, or paper felts, or other materials of felt-like appearance, which are products of entirely different construction.

3. DEFINITIONS

3.1 *Felt*.—Felt is a fabric built up by the interlocking of fibers by a suitable combination of mechanical work, chemical action, moisture and heat, without spinning, weaving, or knitting. It may consist of one or more classes of fibers: wool, reprocessed wool, and/or reused wool, with or without admixture with animal, vegetable, and synthetic fibers. Felt as defined here is commonly referred to as wool felt, and does not include punched, woven, synthetically bonded, stitched, quilted, or paper felts, or other materials of felt-like appearance, which are products of entirely different construction.

3.2 *Wool fiber*.¹—The term "wool" means the fiber from the fleece of the sheep or lamb, or hair of the angora or cashmere goat (and may include the so-called specialty fibers from the hair of the camel, alpaca, llama and vicuna) which has never been reclaimed from any woven or felted wool product.

3.3 *Reprocessed wool fiber*.¹—The term "reprocessed wool" means the resulting fiber when wool has been woven or felted into a wool product, which, without ever having been utilized in any way by the ultimate consumer, subsequently has been made into a fibrous state.

3.4 *Reused wool fiber*.¹—The term "reused wool" means the resulting fiber when wool or reprocessed wool has been spun, woven, knitted, or felted into a wool product which, after having been used in any way by the ultimate consumer, subsequently has been made into a fibrous state.

¹ As defined in the Wool Products Labeling Act of 1939 (Public 850, 76th Congress).

4. MECHANICAL ROLL FELTS

4.1 *Classifying code.*—Mechanical roll felts covered by this standard are classified by a code consisting of the letter "R" preceded by a numeral to indicate consistency in terms of density (unit weight in pounds per square yard of 1-inch nominal thickness), and followed by a second numeral to indicate the difference in type based on fiber composition and chemical and physical properties in relation to end use requirements.

4.2 *Densities and types.*—Five standard felt densities in five types are covered, as shown in table 1. The differences in the physical and chemical characteristics among the five types are given in table 2.

4.3 *Standard thicknesses.*—Thicknesses of standard roll felts shall be in accord with the nominal values and within the tolerances prescribed by table 2.

4.4 *Standard weights.*—Weights of standard roll felts shall be in accord with the nominal values and within the tolerances prescribed by table 2.

4.5 *Standard chemical and physical requirements.*—Chemical and physical requirements of standard roll felts shall be in accord with the values prescribed by table 2.

TABLE 1. *Densities and types of mechanical roll felt*

Classification	Density Index	Type ¹	Trade designation
18R.....	18	1	Laundry.
16R.....	16	1	Backcheck.
		2	
		3	
12R.....	12	1X	Ball bearing felt.
		3X	
		3	
9R.....	9	1	Extra-firm pad.
		2	
		3	
8R.....	8	3X	Lining.
		5	
		5	

¹ X indicates thin felts less than 1/4 in. in thickness.

Example: Felt designated 16R1 is a type 1 roll felt having a density or unit weight of 16 pounds per square yard of 1 inch nominal thickness; 16R3, a type 3 roll felt of the same density. Either of these types will have a mean weight of 8 pounds per square yard in 1/2-inch thickness, or 4 pounds per square yard in 1/4-inch thickness, since the 16R density classification applies to all roll felts of the same unit weight in all thicknesses. Thickness must, therefore, be separately specified following the density and type designation.

TABLE 2. Chemical and physical requirements of mechanical roll felts

Type	SAE specification No.	Trade designation	Thicknesses		Weights		Wool fiber content (min)	Carbon tetra-chloride soluble (max)	Water soluble (max)	Combined carbon tetra-chloride and water soluble (max)	Ash (max)	Tensile strength (min)	Splitting resistance, per 2-in. width (min)	Color	Stand-ard width
			Nominal	Limits	Nominal	Limits									
16R1		Laundry	$\frac{1}{8}$ in.	0.113-0.137	2.25	2.15-2.35	95	2.5	2.5	3.0	1.5	600	35	White	60
			$\frac{3}{16}$	.175-.201	3.38	3.23-3.53								
			$\frac{1}{4}$	.236-.264	4.50	4.30-4.70								
			$\frac{5}{16}$	.298-.328	5.63	5.38-5.88								
			$\frac{3}{8}$	.359-.391	6.75	6.45-7.05								
16R1	F-1	Backcheck	$\frac{1}{2}$.431-.519	9.00	8.60-9.40	95	2.5	2.5	3.0	1.5	500	33	do	60
			$\frac{1}{8}$	0.113-0.137	2.0	1.90-2.10									
			$\frac{3}{16}$	.175-.201	3.0	2.85-3.15								
			$\frac{1}{4}$	.236-.264	4.0	3.80-4.20								
			$\frac{5}{16}$	.298-.328	5.0	4.75-5.25								
16R2	F-2	Backcheck	$\frac{3}{8}$.359-.391	6.0	5.70-6.30	95	2.5	2.5	4.0	2.0	500	28	Any except gray or black	60
			$\frac{1}{2}$	.431-.519	8.0	7.60-8.40								
			$\frac{1}{8}$	0.113-0.137	2.0	1.90-2.10									
			$\frac{3}{16}$	.175-.201	3.0	2.85-3.15								
			$\frac{1}{4}$	.236-.264	4.0	3.80-4.20								
16R3	F-3	Backcheck	$\frac{5}{16}$.298-.328	5.0	4.75-5.25	90	2.5	3.0	4.5	2.5	400	22	Gray	60
			$\frac{3}{8}$	.359-.391	6.0	5.70-6.30								
			$\frac{1}{2}$	.431-.519	8.0	7.60-8.40								
			$\frac{1}{8}$	0.113-0.137	2.0	1.90-2.10									
			$\frac{3}{16}$	.175-.201	3.0	2.85-3.15								

See footnotes on p. 8.

TABLE 2. Chemical and physical requirements of mechanical roll felts—Continued

Type	SAE specification No.	Trade designation	Thicknesses		Weights		Wool fiber content (min)	Carbon tetra-chloride soluble (max)	Water soluble (max)	Combined carbon tetra-chloride and water soluble (max)	Ash (max)	Tensile strength (min)	Splitting resistance, per 2-in. width (min)	Color	Standard width
			Nominal	Limits	Nominal	Limits									
16R1X	F-50	Ball bearing felt...	in. 3/64	0.040-0.054	lb/sq yd 0.750	lb/sq yd 0.712-0.788	percent	percent	percent	percent	percent	psi	pounds	White	60 or 72
			1/16	.056-.070	.975	.937-1.013	95	2.5	2.5	3.0	1.5	500			
			5/64	.071-.085	1.200	1.162-1.238									
16R3X	F-51	Ball bearing felt...	3/32	.087-.101	1.425	1.387-1.463								Gray	60 or 72
			3/4	0.040-0.054	0.750	0.712-0.788	92	2.5	2.5	4.5	2.5	300			
			1/16	.056-.070	.975	.937-1.013									
12R1...	F-5	Extra-firm pad...	3/64	0.111-0.139	1.53	1.45-1.61	95	2.5	2.5	3.0	2.0	400	18	White	60
			1/16	.172-.204	2.29	2.17-2.41									
			1/4	.232-.268	3.06	2.90-3.22									
12R2...	F-6	Extra-firm pad...	3/64	.293-.333	3.82	3.62-4.02	92	2.5	2.5	4.5	2.5	275	16	Gray	60 or 72
			1/16	.353-.397	4.59	4.35-4.83									
			1/4	.474-.526	6.12	5.80-6.44									

12R3---	F-7	Extra-firm pad	$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$	0.111-0.139 .172-.204 .232-.288 .293-.333 .353-.397 .474-.526 .595-.655 .716-.784 .837-.913 .958-1.042	1.53 2.29 3.06 3.82 4.59 6.12 7.65 9.18 10.71 12.24	1.45-1.61 2.17-2.41 2.90-3.22 3.62-4.02 4.35-4.83 5.80-6.44 7.25-8.05 8.70-9.66 10.15-11.27 11.60-12.88	80	3.0	7.0	4.0	3.0	250	12	Gray	72
12R3X-	F-55	Lining	$\frac{1}{16}$ $\frac{3}{32}$	0.056-0.070 .087-.101	0.750 1.125	0.712-0.788 1.087-1.163	75	4.0	8.0	4.0	3.0	200		Gray or black	60 or 72
9R1----	F-10	Firm pad	$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$	0.105-0.145 .165-.211 .224-.276 .284-.342 .343-.407 .462-.538 .591-.669 .700-.800 .819-.931 .938-1.062	1.06 1.59 2.12 2.65 3.18 4.24 5.30 6.36 7.42 8.48	0.98-1.14 1.47-1.71 1.96-2.28 2.45-2.85 2.94-3.42 3.92-4.56 4.90-5.70 5.88-6.84 6.86-7.98 7.84-9.12	95	2.5	3.0	2.5	2.5	225	8	White	72
9R2----	F-11	Firm pad	$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$	0.105-0.145 .165-.211 .224-.276 .284-.342 .343-.407 .462-.538 .591-.669 .700-.800 .819-.931 .938-1.062	1.06 1.59 2.12 2.65 3.18 4.24 5.30 6.36 7.42 8.48	0.98-1.14 1.47-1.71 1.96-2.28 2.45-2.85 2.94-3.42 3.92-4.56 4.90-5.70 5.88-6.84 6.86-7.98 7.84-9.12	92	3.0	4.5	2.5	3.0	200	6	Gray	72
9R3----	F-12	Firm pad	$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{1}$	0.105-0.145 .165-.211 .224-.276 .284-.342 .343-.407 .462-.538 .591-.669 .700-.800 .819-.931 .938-1.062	1.06 1.59 2.12 2.65 3.18 4.24 5.30 6.36 7.42 8.48	0.98-1.14 1.47-1.71 1.96-2.28 2.45-2.85 2.94-3.42 3.92-4.56 4.90-5.70 5.88-6.84 6.86-7.98 7.84-9.12	85	4.0	6.5	2.5	3.5	100	3	do	72

See footnotes on p. 8.

TABLE 2. Chemical and physical requirements of mechanical roll felts—Continued

Type	SAE specification No.	Trade designation	Thicknesses		Weights		Wool fiber content ¹ (min)	Carbon tetra-chloride soluble (max)	Water soluble (max)	Combined carbon tetra-chloride and water soluble (max)	Ash (max)	Tensile strength (min)	Splitting resistance, ² per 2-in width (min)	Color	Standard width
			Nominal	Limits	Nominal	Limits									
9R4----	F-13	Firm pad-----	$\frac{1}{16}$ in.	0.105-0.145	$\frac{1}{16}$ lb/sq yd	0.98-1.14	75	4.0	4.0	8.0	3.5	75	2	Gray-----	72
			$\frac{3}{16}$	.165-.211	1.06	1.47-1.71								
			$\frac{1}{4}$	.224-.276	1.59	1.96-2.28								
			$\frac{5}{16}$	.284-.342	2.12	2.45-2.85								
			$\frac{3}{8}$	.343-.407	2.65	2.94-3.42								
9R5----	F-15	Firm pad-----	$\frac{1}{16}$.105-.145	$\frac{1}{16}$ lb/sq yd	0.98-1.14	55	4.0	5.0	9.0	4.0	75	2	do-----	72
			$\frac{3}{16}$	.165-.211	1.06	1.47-1.71								
			$\frac{1}{4}$	.224-.276	1.59	1.96-2.28								
			$\frac{5}{16}$	.284-.342	2.12	2.45-2.85								
			$\frac{3}{8}$	.343-.407	2.65	2.94-3.42								
8R5----	F-26	Soft pad-----	$\frac{1}{16}$.085-.165	0.90	0.81-0.99	45	8.0	6.0	14.0	5.0			do-----	72
			$\frac{3}{16}$	.194-.306	1.80	1.62-1.98								
			$\frac{1}{4}$	.303-.447	2.70	2.43-2.97								
			$\frac{5}{16}$	.412-.588	3.60	3.24-3.96								
			$\frac{3}{8}$	.630-.870	5.40	4.86-5.94								

¹ The wool fiber content indicates the percentage of wool by chemical analysis, but does not differentiate between wool, reprocessed wool, and reused wool, and is exclusive of traces of other fibers and impurities present in the wool used in fabricating the several types of felt. For example, type 16R1, fabricated from 100 percent wool, may contain incidental traces of other fibers, residual wool fats and oils, or soaps used in processing.

which may reduce the actual wool fiber content on analysis to a minimum of 95 percent.

² Splitting resistance is not applicable to felts where the thickness is less than $\frac{3}{16}$ in. For material less than $\frac{3}{16}$ in. in thickness, breaking strength only is recommended as an indicative test.

5. SHEET FELTS

5.1 *Classifying code.*—The densities and types of sheet felts covered by this standard are classified by a code consisting of the letter "S" preceded by a numeral to indicate consistency in terms of density (unit weight in pounds of 1 square yard of 1 inch nominal thickness), and followed by a second numeral to indicate type classification based upon fiber composition in relation to the end use requirements of the felt.

5.2 Densities and types.

5.2.1 *Types.*—Four standard types of sheet felt are included herein:

Type 1. This type of sheet felt is composed of highest quality white wools, predominantly U. S. Standard 64's, processed to be free from vegetable, paint, and other foreign matter, and is of the class generally known as Fine Spanish, or its equivalent.

Type 2. This type of sheet felt is composed of select unbleached wools, predominantly U. S. Standard 58's, largely free from vegetable and other foreign matter, and is of the class generally known as Spanish, Sub-Spanish, Medium Fine Spanish, or their equivalent.

Type 3. This type of sheet felt is composed of wool, predominantly U. S. Standard 56's, and is of the class generally known as Mexican, or its equivalent.

Type 4. This type of sheet felt is composed of wool, U. S. Standard 50's or coarser, and is of the class generally known as Coarse Mexican, or its equivalent.

5.2.2 *Densities.*—Five standard densities in the four types are covered in table 3.

TABLE 3. Densities and types of sheet felts

Classification	Density index	Description	Type	Trade designation
32S.....	32	Extra hard.....	1 2 3 4	Fine Spanish. Spanish. Mexican. Coarse Mexican.
26S.....	26	Hard.....	1 2 3 4	Fine Spanish. Spanish. Mexican. Coarse Mexican.
20S.....	20	Medium.....	1 2 3 4	Fine Spanish. Spanish. Mexican. Coarse Mexican.
16S.....	16	Soft.....	1 2 3 4	Fine Spanish. Spanish. Mexican. Coarse Mexican.
12S.....	12	Extra soft.....	1 2 3 4	Fine Spanish. Spanish. Mexican. Coarse Mexican.

Example: Felt designated 26S1 is a type 1 sheet felt having a density or unit weight of 26 pounds per square yard of 1-inch nominal thickness; 26S3 indicates a type 3 sheet felt of the same density. Either of these types will have a mean weight of 13 pounds per square yard in ½-inch thickness, since the 26S density classification applies to all sheet felts of the same unit weight in all thicknesses. Thickness, therefore, must be specified separately following the density and type designation.

TABLE 4. *Weights and thicknesses of sheet felts*¹

Density -----	12S (Extra soft)				16S (Soft)				20S (Medium)				26S (Hard)				32S (Extra hard)																									
	Type -----		12S1		12S2		12S3		12S4		16S1		16S2		16S3		16S4		20S1		20S2		20S3		20S4		26S1		26S2		26S3		26S4		32S1		32S2		32S3		32S4	
	Trade designation		Fine Spanish		Spanish		Mexican		Coarse Mexican		Fine Spanish		Spanish		Mexican		Coarse Mexican		Fine Spanish		Spanish		Mexican		Coarse Mexican		Fine Spanish		Spanish		Mexican		Coarse Mexican		Fine Spanish		Spanish		Mexican		Coarse Mexican	
Nominal thickness ² (inches)	Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)		Weight (lb/sq yd)		Thickness (inches)			
	Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits		Nominal	Limits				
		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max	Min	Max	Min
1/4	3.00	2.80	3.20	0.230	0.270	4.00	3.70	4.30	0.234	0.266	5.00	4.60	5.40	0.236	0.264	6.50	5.90	7.10	0.239	0.261	8.00	7.00	9.00	0.243	0.257	12.00	10.90	13.10	0.261	0.287	12.00	10.90	13.10	0.266	0.384							
1/2	4.50	4.20	4.80	0.351	0.399	6.00	5.60	6.40	0.356	0.394	7.50	7.00	8.00	0.359	0.391	9.75	8.95	10.55	0.362	0.388	12.00	10.90	13.10	0.366	0.384	16.00	14.80	17.20	0.382	0.408	16.00	14.80	17.20	0.386	0.412							
3/4	6.00	5.60	6.40	0.470	0.530	8.00	7.50	8.50	0.478	0.522	10.00	9.40	10.60	0.481	0.519	13.00	12.00	14.00	0.484	0.516	16.00	14.80	17.20	0.489	0.511	20.00	18.70	21.30	0.507	0.533	20.00	18.70	21.30	0.512	0.538							
1	7.50	7.05	7.95	0.590	0.660	10.00	9.40	10.60	0.599	0.651	12.50	11.80	13.20	0.603	0.647	16.25	15.15	17.35	0.607	0.643	20.00	18.70	21.30	0.612	0.638	24.00	22.60	25.40	0.630	0.656	24.00	22.60	25.40	0.635	0.661							
1 1/4	9.00	8.50	9.50	0.710	0.790	12.00	11.30	12.70	0.721	0.779	15.00	14.20	15.80	0.725	0.775	19.50	18.30	20.70	0.730	0.770	24.00	22.60	25.40	0.735	0.765	28.00	26.50	29.50	0.753	0.779	28.00	26.50	29.50	0.758	0.782							
1 1/2	10.50	9.95	11.05	0.829	0.921	14.00	13.25	14.75	0.843	0.907	17.50	16.60	18.40	0.848	0.902	22.75	21.45	24.05	0.853	0.897	28.00	26.50	29.50	0.858	0.892	32.00	30.40	33.60	0.875	0.901	32.00	30.40	33.60	0.880	0.904							
1 3/4	12.00	11.40	12.60	0.949	1.051	16.00	15.20	16.80	0.964	1.036	20.00	19.00	21.00	0.970	1.030	26.00	24.60	27.40	0.975	1.025	32.00	30.40	33.60	0.981	1.019	40.00	38.30	41.70	1.005	1.031	40.00	38.30	41.70	1.010	1.046							
2	15.00	14.30	15.70	1.188	1.312	20.00	19.10	20.90	1.203	1.292	25.00	23.90	26.10	1.214	1.286	30.75	29.25	32.25	1.221	1.279	48.00	46.20	49.80	1.228	1.272	56.00	54.00	58.00	1.255	1.281	56.00	54.00	58.00	1.260	1.296							
2 1/4	18.00	17.20	18.80	1.428	1.572	24.00	23.00	25.00	1.451	1.549	30.00	28.80	31.20	1.459	1.541	35.50	33.90	37.10	1.467	1.533	48.00	46.20	49.80	1.474	1.526	56.00	54.00	58.00	1.505	1.531	56.00	54.00	58.00	1.510	1.546							
2 1/2	21.00	20.10	21.90	1.667	1.833	28.00	26.90	29.10	1.694	1.906	35.00	33.70	36.30	1.703	1.797	40.25	38.55	41.95	1.712	1.788	48.00	46.20	49.80	1.718	1.782	56.00	54.00	58.00	1.815	1.841	56.00	54.00	58.00	1.820	1.856							
3	24.00	23.00	25.00	1.906	2.094	32.00	30.80	33.20	1.937	2.063	40.00	38.60	41.40	1.947	2.053	45.00	43.20	46.80	1.958	2.042	48.00	46.20	49.80	1.964	2.000	56.00	54.00	58.00	2.065	2.091	56.00	54.00	58.00	2.070	2.106							
3 1/4	30.00	28.95	31.05	2.385	2.615	40.00	38.75	41.25	2.424	2.576	50.00	48.55	51.45	2.436	2.564	54.50	52.60	56.40	2.449	2.551	56.00	54.00	58.00	2.455	2.500	64.00	62.00	66.00	2.565	2.591	64.00	62.00	66.00	2.570	2.615							
3 1/2	36.00	34.90	37.10	2.864	3.136	48.00	46.70	49.30	2.910	3.090	60.00	58.50	61.50	2.925	3.075	64.00	62.00	66.00	2.940	3.060	64.00	62.00	66.00	2.945	3.000	80.00	78.00	82.00	3.175	3.201	80.00	78.00	82.00	3.180	3.225							

¹ Made in sheets 36 in. by 36 in.² Sheets of 1/8 in. thickness are manufactured on order in types 20S, 26S, and 32S.

5.3 *Standard thicknesses.*—Thicknesses of standard sheet felts shall be in accord with the nominal values and within the tolerances prescribed by table 4.

5.4 *Standard weights.*—Weights of standard sheet felts shall be in accord with the nominal values and within the tolerances prescribed by table 4.

5.5 *Standard chemical and physical requirements.*—Chemical and physical properties of standard sheet felts shall be in accord with the values prescribed by table 5.

TABLE 5. *Chemical and physical properties of sheet felts*

Density	Type	Trade designation	Wool fiber content ¹ (min)	Carbon tetrachloride soluble (max)	Water soluble (max)	Combined carbon tetrachloride and water soluble (max)	Splitting resistance, per 2-in. width (min)	Water thickness swell (max)
			percent	percent	percent	percent	pounds	percent
12S (Extra soft)	{	12S1 Fine Spanish	95	2.0	2.0	3.0	18	20
		12S2 Spanish	95	2.5	2.5	3.5	16	25
		12S3 Mexican	95	2.5	2.5	3.5	12	30
		12S4 Coarse Mexican	95	2.5	2.5	4.0	10	30
16S (Soft)	{	16S1 Fine Spanish	95	2.0	2.0	3.0	32	25
		16S2 Spanish	95	2.5	2.5	3.5	28	30
		16S3 Mexican	95	2.5	2.5	3.5	22	35
		16S4 Coarse Mexican	95	2.5	2.5	4.0	20	35
20S (Medium)	{	20S1 Fine Spanish	95	2.0	2.0	3.0	44	30
		20S2 Spanish	95	2.5	2.5	3.5	40	40
		20S3 Mexican	95	2.5	2.5	3.5	36	50
		20S4 Coarse Mexican	95	2.5	2.5	4.0	32	50
26S (Hard)	{	26S1 Fine Spanish	95	2.0	2.0	3.0	48	40
		26S2 Spanish	95	2.5	2.5	3.5	46	50
		26S3 Mexican	95	2.5	2.5	3.5	40	60
		26S4 Coarse Mexican	95	2.5	2.5	4.0	30	60
32S (Extra-hard)	{	32S1 Fine Spanish	95	2.0	2.0	3.0	50	50
		32S2 Spanish	95	2.5	2.5	3.5	48	60
		32S3 Mexican	95	2.5	2.5	3.5	46	70
		32S4 Coarse Mexican	95	2.5	2.5	4.0	40	70

¹ The wool fiber content indicates the percentage of wool by chemical analysis, but does not differentiate between wool, reprocessed wool, and reused wool, and is exclusive of traces of other fibers and impurities present in the wool used in fabricating the several types of felt. For example, type 16S1, fabricated from 100-percent wool, may contain incidental traces of other fibers, residual wool fats and oils, or soaps used in processing, which may reduce the actual wool fiber content on analysis to a minimum of 95 percent.

6. ROLL FELTS FOR THE APPAREL AND DECORATIVE TRADES

NOTE.—Included in this group are felts used by the needle trades and by manufacturers of soft goods, principally in the lower densities and thicknesses—such as millinery, lettering, upholstery, pennant, surgical, orthopedic, lining, coat front, insulation, cushioning, and like felts.

6.1 *Type or trade designation.*—Types of roll felts covered by this standard are classified by trade designations such as decorative, slipper, collar, lining, coat front, athletic pad, orthopedic pad, surgical pad, cushioning, and insulation.

6.2 *Standard grades.*—The standard grades of roll felts covered by this commercial standard, together with pertinent specifications, are given in table 6.

TABLE 6. *Physical and chemical requirements for roll felts for apparel and decorative trades*

Trade designation	Thickness			Weight per square yard			Wool fiber content, min ¹	Color	Stand-ard width	
	Nominal	Limits		Nom-inal	Limits					
		Min	Max		Min	Max				
	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>pounds</i>	<i>pounds</i>	<i>pounds</i>	<i>percent</i>		<i>inches</i>	
Athletic pad	$\frac{1}{16}$	0.085	0.165	0.97	0.88	1.06	25	White	72	
	$\frac{1}{4}$	.198	.302	1.97	1.88	2.06			
	$\frac{3}{8}$	.311	.438	2.63	2.50	2.75			
	$\frac{1}{2}$	.425	.575	3.38	3.25	3.50			
Coat front				ounces	ounces	ounces	20	Gray	80	
Do				3.04	2.92	3.15	20	White	80	
Cushioning and lining	$\frac{1}{16}$ (approx.) ²			6.00	5.75	6.25	35	Gray	72	
				7.00	6.75	7.25				
				8.00	7.50	8.50				
				9.00	8.50	9.50				
				10.00	9.50	10.50				
				11.00	10.50	11.50				
				12.00	11.50	12.50				
				13.00	12.50	13.50				
				14.00	13.50	14.50				
				15.00	14.50	15.50				
$\frac{1}{8}$ (approx.) ²			16.00	15.50	16.50					
Cushioning and lining	$\frac{1}{16}$ (approx.) ²			6.00	5.75	6.25	25	White	72	
				7.00	6.75	7.25				
				8.00	7.50	8.50				
				9.00	8.50	9.50				
				10.00	9.50	10.50				
				11.00	10.50	11.50				
				12.00	11.50	12.50				
				13.00	12.50	13.50				
				14.00	13.50	14.50				
				15.00	14.50	15.50				
$\frac{1}{8}$ (approx.) ²			16.00	15.50	16.50					
Decorative ³	{			7.25	7.00	7.50	100	All colors	72	
				8.00	7.75	8.25	100	do		
				8.00	7.75	8.25	100	White		
				6.75	6.50	7.00	70	All colors		
Lining	{			6.75	6.50	7.00	70	White	72	
				4.625	4.50	4.75	25	All colors		
				12.00	11.50	12.50	60	do		
				13.00	12.50	13.50	60	do		
Slipper: Uppers	{			14.00	13.50	14.50	60	do	72	
				15.00	14.50	15.50	60	do		
				16.00	15.50	16.50	60	do		
				17.00	16.50	17.50	60	do		
Collars				9.25	9.00	9.50	60	do	72	
Insulation (kapok blend)	{			pounds	pounds	pounds	30	Natural	72	
		$\frac{1}{16}$			0.41	0.35				0.47
		$\frac{3}{16}$.61	.55				.67
		$\frac{1}{4}$.81	.75				.87
Orthopedic	{	$\frac{3}{8}$			1.22	1.15	1.28	35	White	72
		$\frac{1}{2}$			1.62	1.56	1.68			
		$\frac{1}{16}$	0.085	0.165	1.00	0.94	1.06			
		$\frac{1}{4}$.198	.302	2.00	1.88	2.13			
Surgical	{	$\frac{3}{8}$.311	.438	3.00	2.75	3.25	50	do	72
		$\frac{1}{2}$.425	.575	4.00	3.75	4.25			
		$\frac{1}{16}$	0.085	0.165	1.06	1.00	1.12			
		$\frac{1}{4}$.198	.302	2.06	2.00	2.12			

¹ The minimum wool fiber content as determined by chemical analysis indicates the percentage of wool used in fabricating the several types of felt, and does not differentiate between wool, reprocessed wool, and reused wool as defined by the Wool Products Labeling Act of 1939.

² Other thicknesses in proportion to weight.

³ Also known to the trade as millinery, lettering, pennant, applique, and upholstery felts.

7. METHODS OF TEST

7.1 The properties of roll felts, sheet felts, and roll felts for the apparel and decorative trades enumerated in this standard shall be determined in accordance with the latest revision of the Standard Methods of Testing Felt of the American Society for Testing Materials, Designation D461, except that for sheet felts the method for determining weight shall be as stated in paragraph 7.2, and the method for determining thickness of insulation felt, kapok blend, shall be as given in paragraph 7.3.

7.2 The standard method for determining the weight of sheet felt for comparison with standard tolerances shall be to weigh the entire sheet to the nearest hundredth of a pound on an accurately calibrated scale. The size of the sheet shall be accurately measured with a steel rule or tape, and the area computed to the nearest hundredth of a square yard. From the measurements of sheet weight and area, the equivalent weight per square yard of the sheet shall be computed.

7.3 The standard method for determining the thickness of insulation felt, kapok blend, shall be to lay a 12-inch square sample on a flat surface and place symmetrically upon it a steel plate $\frac{1}{8}$ inch thick and 12 $\frac{1}{2}$ inches square. Measure the distance between the supporting flat surface and the underside of the steel plate at the center of each side. The average of these four values is the recorded thickness. Thicknesses over $\frac{1}{2}$ inch are not manufactured, but may be built up.

8. IDENTIFICATION²

8.1 *Statement.*—In order that purchasers may be assured that the felts comply with all requirements of this commercial standard, it is recommended that manufacturers include the following statement in conjunction with their name and address on labels, invoices, sales literature, etc.:

This felt complies with Commercial Standard CS185-52, as developed by the trade under the procedure of the Commodity Standards Division, and issued by the U. S. Department of Commerce.

Classification or
trade designation..... Type.....

8.2 When available space on labels is insufficient for the full statement in legible type, an abbreviated statement, as follows, is recommended:

Complies with Commercial Standard CS185-52, as developed by the trade, and issued by the U. S. Department of Commerce.

Classification or
trade designation..... Type.....

² The wording recommended in this paragraph is in addition to that on labeling as to fiber content, as required by the Wool Products Labeling Act of 1939 (Public 850, 76th Congress) and the rules and regulations under that act, as promulgated by the Federal Trade Commission.

8.3 The seal shown below illustrates how an important group of producers has arranged to declare compliance with the commercial standard. Wool felt produced by members of this group to conform with the standard may be readily identified by means of this seal.



Figure 1. Manufacturers' seal.

9. GENERAL INFORMATION

9.1 Mechanical roll felt.

9.1.1 The mechanical roll felts listed in table 2, with the exception of type 18R1, are identical in type, weight, and other specifications with the felt standards of the Society of Automotive Engineers (SAE) with which they are identified by parallel designations. All types are identical to those of the Mechanical Roll Felt specification of the American Society for Testing Materials adopted as standard in 1949 by the ASTM.

9.1.2 Applications.

9.1.2.1 The following notes on mechanical felt applications, referring particularly to roll felts, are supplementary to but in no sense a part of this standard.

9.1.2.2 Applications are indicated under type numbers for two purposes: first, to show the general effect of the standard method of classifying felts in terms of density and type and especially to relate

considerations of various end uses to the specifications prescribed by the standard; and, second, to illustrate the application of the standard by naming a variety of end uses for each type as a general guide for selecting felts for similar and kindred uses.

9.1.2.3 In general, the applications mentioned are within the range of the manufacturers' recommendations and are suitable for comparison and general guidance. Felts for new applications, especially in newly developed processes and machines, should be finally selected only after consultation with the manufacturers in order to receive the benefits of the latest engineering experience.

9.1.2.4 *Typical roll felt applications.*

Laundry (18R1)	-----	Ink and transfer rolls for multigraph, mimeograph and similar machines; narrow wall oil-retaining washers, and intricate cut parts; special types of polishing.
Backcheck (16R1)	-----	Washers, bushings, wicks, ink rolls and pads, door bumpers, polishing blocks, wheels and pads, grommets, window channels, resilient mountings, anti-vibration and damping pads; parts requiring resistance to wear and abrasion; also suitable for oil retention where the felt is not compressed, for feeding light oil, and where unusual strength and hardness are required.
(16R2-16R3)	---	Vibration mountings, dust shields, wipers, grease and oil shields; also suitable for many of the same applications as given for 16R1 but where a felt of slightly lower tenacity or different consistency is desired or permissible.
Ball bearing (16R1X)	---	Ball and roller bearing oil-retainer washers and small dust-excluding washers; also for mechanical purposes where an accurate, thin, smooth, high-class felt is required.
Ball bearing (16R3X)	---	Thin cut parts, such as gaskets and liners; also applications similar to those for 16R1X, where tolerance and length of life are not as important.
Extra-firm pad (12R1-12R2- 12R3)	---	Dust shields, wipers, grease retainer washers, wicks, vibration mountings; also for general uses where a resilient felt is required.
Lining (12R3X)	-----	Antisqueak strips; lining when cemented to fiber board or metal panels.
Firm pad (9R1-9R2-9R3)	-----	Grease and oil retention where the felt is confined and compressed in assembly; also dust shields under less severe operating conditions than require the use of 12R1, 12R2, or 12R3.
(9R4-9R5)	-----	Sound deadening, chassis strips, spacers, dust shields, pedal pads, dash liners; in general, for mechanical purposes where abrasion and wear are not important factors.
Soft pad (8R5)	-----	Packing and padding when held between other materials; unsuitable for mechanical purposes.

9.2 Sheet felt.

9.2.1 Sheet felts offer maximum precision and are characterized by marked dimensional stability. Although not incorporated in the standard specifications, constructions exhibiting no shrinkage and maximum swelling of 10 percent are possible.

9.2.2 *Design.*—Mechanical felt parts are designed parts in which the density and type of the material and the dimensions of the parts must be adjusted to the accommodation of structural parts without impairment of the desired function. For that reason even such common parts as washers, gaskets, strips and disks, as well as special forms, are usually fabricated to customer's blueprints. Felts for new applications, especially in newly developed processes and products, should be specified only after consultation with the industry in order to obtain the most advanced information.

9.2.3 *Selectivity.*—Mechanical felt parts are fabricated from all types of sheet felts. Maximum economy is usually attained by using standard materials, and the range of standards has been designed to afford maximum selectivity. Modification of the natural characteristics of the felt may be effected by treatments to satisfy special conditions, such as impregnation for protection against flame, fungi, vermin, moths, or bacteria; or to reduce permeability or increase stiffness. Laminations with other materials may be used to provide an impermeable wall, prevent reaction of corrosives, or provide a sealing surface. All such treatments are outside the purview of the standard.

9.2.4 *Typical applications of sheet felt.*—The following enumeration of sheet felt applications is supplementary to but not a part of this standard. The applications mentioned are typical and general, rather than specific. However, they are within the range of recommended practice and may be used for comparison and guidance.

(a) *32S Sheet felts*, generally termed "extra-hard sheet felts," and designated respectively as 32S1, 32S2, 32S3, and 32S4, are suitable for extra-hard density polishing wheels and buffs, corresponding to fine, medium fine, medium coarse, and coarse qualities, such as are used for dental, jewelry, glass, and lapidary polishing; also for such parts as hard washers, bumpers and casters.

(b) *26S Sheet felts*, generally termed "hard sheet felts," and designated respectively as 26S1, 26S2, 26S3, and 26S4, are suitable for hard density polishing wheels and buffs for glass sheet, glassware, and ophthalmic lens polishing; for metal and metallographic polishing, wood polishing, and furniture rubbing; also for block cutters, print rolls, cash carrier heads, points for making pens, casters, boot and shoe soles, artificial limbs.

(c) *20S Sheet felts*, generally termed "medium-hard sheets," and designated respectively as 20S1, 20S2, 20S3, and 20S4, are suitable for medium density polishing wheels and buffs for polishing lenses, mirrors and glass, marble and granite; also for fluid transfer rolls, ink rolls, shoe rolls (scouring), furniture rubbing, rough metal polishing, metal wiping, drilled wicks, bearing seal washers, stamp pads, cushioning under sandpaper.

(d) *16S Sheet felts*, generally termed "soft sheets," and designated respectively as 16S1, 16S2, 16S3, and 16S4, are suitable for medium density polishing wheels and buffs for precious metal and plastic polishing, rough optical polishing, marble polishing, metal wiping,

drum beaters; also for drilled wicks, bearing seals, shoe rolls (shank), fluid transfer rolls, oil and fluid wicks, grease and oil-retaining washers, ink rollers, vibration and shock mountings, bumpers, plugs, glass channels.

(e) *12S Sheet felts*, generally termed "extra-soft sheets," and designated respectively as 12S1, 12S2, 12S3, and 12S4, are suitable for soft density polishing wheels and buffs for polishing plastic, polishing and wiping brass; also for piano wedges, surgical pads, punched wicks, dampeners, absorbent pads, oil and fluid retainers, fluid transfer rolls, bearing seals, washers, wicks, shim and spacer pads, shoe insoles, dust shields, antivibration pads.

9.2.5. The requirements for sheet felts as given in tables 4 and 5 conform with the essential requirements adopted by the Felt Association September 17, 1948, and September 23, 1949, and by the American Society for Testing Materials as D1114-51.

10. EFFECTIVE DATE

10.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective from February 21, 1952.

EDWIN W. ELY,

Chief, Commodity Standards Division.

HISTORY OF PROJECT

The Felt Association on March 15, 1951, requested the cooperation of the Commodity Standards Division in the establishment of a commercial standard for wool felt, and submitted a proposed specification to be used as a basis for the commercial standard.

The specification was submitted for comment on June 25, 1951, to a number of manufacturers, distributors, users, and others interested. After adjustment and agreement with the consensus of comment received, a recommended commercial standard was referred to the trade for written acceptance on December 5, 1951.

Acceptances in writing estimated to represent a satisfactory majority having been received, an announcement was issued on January 21, 1952, that the standard would become effective for new production on February 21, 1952.

Project Manager: H. A. Ehrman, Commodity Standards Division, Office of Industry and Commerce.

Technical Adviser: W. D. Appel, Organic and Fibrous Materials Division, National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Industry and Commerce, United States Department of Commerce, which acts as secretary for the committee.

WM. H. LEHMBERG, Chairman

- yes FAUROT, W. S., Western Felt Works, 4029-35 Ogden Avenue, Chicago 23, Ill.
HARNDEN, GEORGE, General Electric Co., Schenectady, N. Y.
yes IVES, R. S., Esselen Research Division of United States Testing Co., 857 Boylston Street, Boston 16, Mass. (representing American Council of Commercial Laboratories, Inc.).
yes KASWELL, E. R., Fabric Research Laboratories, 665 Boylston Street, Boston 16, Mass.
yes KING, C. W., The Felters Co., 22 West Street, Millbury, Mass. (representing The Felt Association).
yes LEHMBERG, WM. H., American Felt Co., Glenville, Conn. (representing The Felt Association).
No MASTERSON, WM. H., Better Fabrics Testing Bureau, 101 West 31st Street, New York 1, N. Y.
No NEWBOLD, WM. J., Continental Felt Co., 22-26 West 15th Street, New York 11, N. Y.
No STEVENS, R. S., Booth Felt Co., 463-473 19th Street, Brooklyn 15, N. Y.
yes SUDDUTH, A. N., James H. Rhodes Co., 48-02 29th Street, Long Island City, N. Y.
American Society for Testing Materials—representative to be appointed.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date _____

Commodity Standards Division,
Office of Industry and Commerce,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that the Commercial Standard 185-52 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production¹ distribution¹ purchase¹ testing¹
of wool felt.

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer _____

(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Organization _____

(Fill in exactly as it should be listed)

Street address _____

City, zone, and State _____

¹ Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard, and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, testing, or purchase of wool felt. In accepting the standard they reserved the right to depart from it as they individually deem advisable. It is expected that wool felt which actually complies with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

ASSOCIATIONS

(General Support)

Felt Association, The, New York, N. Y.
National Association of Master Plumbers, Washington, D. C.

FIRMS AND OTHER INTERESTS

Advance Felt & Gasket Co., Chicago, Ill.
Allentown Hospital, The, Allentown, Pa.
Aluminum Company of America, Pittsburgh, Pa. (and subsidiaries).
American Felt Co., Glenville, Conn.
American Felt Co., Cleveland, Ohio.
American Furniture Co., Batesville, Ind.
American Specialty Supply Co., New York, N. Y.
Atlantic Felt & Gasket Co., Philadelphia, Pa.
Bacon Felt Co., Taunton, Mass.
Ball Stores, Inc., Muncie, Ind.
Bluefield Sanitarium, Bluefield, W. Va.
Bon Marché, Sacramento, Calif.
Booth Felt Co., The, Brooklyn, N. Y.
Booth Felt Co., The, Chicago, Ill.
Boston Felt Co., Boston, Mass.
Bowser-Morner Testing Laboratories, Dayton, Ohio.
Brady Felt Products Co., Pittsburgh, Pa.
Brandt Cabinet Works, Inc., The, Hagerstown, Md.
Brawley, T. R., Felt Co., Inc., Brooklyn, N. Y.
Burns, E. Reed, Manufacturing Corp., Brooklyn, N. Y.
California Testing Laboratories, Inc., Los Angeles, Calif.
Central Felt Co., Inc., New York, N. Y.
Central of Georgia Railway Co., Savannah, Ga.
Chicago Wheel & Manufacturing Co., Chicago, Ill.
Children's Hospital of the District of Columbia, Washington, D. C.
Compton Sanitarium & Las Campanas Hospital, Compton, Calif.
Conemaugh Valley Memorial Hospital, Johnstown, Pa.
Consolidated Felt Co., Inc., Chicago, Ill.
Continental Felt Co., New York, N. Y.
Cox & Fuller, New York, N. Y.
Curtis & Tompkins, Ltd., San Francisco, Calif.
Denver Department of Health and Hospitals, Denver, Colo.
Desmond's, Los Angeles, Calif. (General support.)
Dickson & Ives, Inc., Orlando, Fla.
Eder Manufacturing Co., Milwaukee, Wis.
Ekroth Laboratories Inc., Brooklyn, N. Y.
Felt Parts Co., Brooklyn, N. Y.
Felters Co., The, Boston, Mass.
Fidelity Felt & Manufacturing Co., Philadelphia, Pa.
Freeman, David, & Son, Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Grant, Gail G., Co., Painesville, Ohio.
Greenville General Hospital, Greenville, S. C.
Grieve, Bisset & Holland, Inc., Waterbury, Conn.
Henry W. Putnam Memorial Hospital, Bennington, Vt.
House, Chas. W., & Sons, Inc., Unionville, Conn.

Indiana University Medical Center, Indianapolis, Ind.
Iowa Methodist Hospital, Des Moines, Iowa.
Kaufmann Department Stores, Pittsburgh, Pa.
Kimball, W. W., Co., Chicago, Ill.
Kugelman's, Woodsville, N. H.
Latter-Day Saints Hospital, Salt Lake City, Utah.
Lincoln General Hospital, Lincoln, Nebr.
Louisville General Hospital, Louisville, Ky.
Lynchburg General Hospital, Lynchburg, Va.
Macy, R. H., & Co., Inc., New York, N. Y.
Malden Hospital, The, Malden, Mass.
Mary Fletcher Hospital, Burlington, Vt.
Mechanical Felt & Textiles Co., Weehawken, N. J.
Memorial Hospital of Natrona County, Casper, Wyo.
Methodist Hospital, Gary, Ind.
Methodist State Hospital, Mitchell, S. Dak.
Miner Laboratories, The, Chicago, Ill.
Nashville General Hospital, Nashville, Tenn.
New York Testing Laboratories, Inc., New York, N. Y.
Old Hickory Furniture Co., Inc., Martinsville, Ind.
Patzig Testing Laboratories, Des Moines, Iowa.
Paulsboro Manufacturing Co., Paulsboro, N. J.
Penniman & Browne, Inc., Baltimore, Md.
Phoenix Medical Center, Phoenix, Ariz.
Polytechnique Laboratories, Ozone Park, N. Y.
Quaker City Felt Co., Philadelphia, Pa.
Rhodes, James H., & Co., Long Island City, N. Y.
Rich's, Inc., Atlanta, Ga.
Robert Packer Hospital, Sayre, Pa.
Sage Memorial Hospital, Ganado, Ariz.
St. Mark's Hospital, Salt Lake City, Utah.
Shawnee Indian Sanatorium, Shawnee, Okla.
Shodair Crippled Children's Hospital, Helena, Mont.
Southern Baptist Hospital, New Orleans, La.
Spiegel, Inc., Chicago, Ill.
Standard Felt Co., Alhambra, Calif.
State Hospital for Crippled Children, Elizabethtown, Pa.
Steinway & Sons, New York, N. Y.
Stewart-Warner Corp., Chicago, Ill.
Story & Clark Piano Co., Grand Haven, Mich.
Sunny Acres Tuberculosis Hospital, Cleveland, Ohio.
Swedish Hospital, The, Seattle, Wash.
Tacoma Indian Hospital, Tacoma, Wash.
Tampa Municipal Hospital, Tampa, Fla.
Twin City Testing & Engineering Laboratory, St. Paul, Minn.
Twining Laboratories, The, Fresno, Calif.
U. S. Soldiers' Home, Washington, D. C.
United States Testing Co., Hoboken, N. J.
University Hospital, Augusta, Ga.
Washoe Medical Center, Reno, Nev.
Waterbury Felt Co., The, Skaneateles Falls, N. Y.
Waterbury Hospital, Waterbury, Conn.
Western Felt Works, Chicago, Ill.
York & Foster, Inc., Union City, Pa.

U. S. GOVERNMENT

Public Housing Administration, Operations Engineering Branch, Washington, D. C.

COMMERCIAL STANDARDS

CS No.

- 0-40. Commercial standards and their value to business.
- 1-52. Clinical thermometers.
- 2-30. Mopsticks.
- 3-40. Stoddard solvent.
- 4-29. Staple porcelain (all-clay) plumbing fixtures.
- 5-46. Pipe nipples; brass, copper, steel, and wrought-iron.
- 6-31. Wrought-iron pipe nipples. Superseded by CS5-46.
- 7-29. Standard weight malleable iron or steel screwed unions.
- 8-51. Gage blanks.
- 9-33. Builders' template hardware.
- 10-29. Brass pipe nipples. Superseded by CS5-46.
- 11-41. Moisture regains of cotton yarns.
- 12-48. Fuel oils.
- 13-44. Dress patterns.
- 14-51. Boys' sport and dress shirt (woven fabrics) size measurements.
- 15-46. Men's pajama sizes (made from woven fabrics).
- 16-29. Wallpaper.
- 17-47. Diamond core drill fittings.
- 18-29. Hickory golf shafts.
- 19-32. Foundry patterns of wood.
- 20-49. Vitreous china plumbing fixtures.
- 21-39. Interchangeable ground-glass joints, stop-cocks, and stoppers.
- 22-40. Builders' hardware (nontemplate).
- 23-30. Feldspar.
- 24-43. Screw threads and tap-drill sizes.
- 25-30. Special screw threads. Superseded by CS24-43.
- 26-30. Aromatic red cedar closet lining.
- 27-36. Mirrors.
- 28-46. Cotton fabric tents, tarpaulins, and covers.
- 29-31. Staple seats for water-closet bowls.
- 30-31. (Withdrawn.)
- 31-38. Wood shingles.
- 32-31. Cotton cloth for rubber and pyroxylin coating.
- 33-43. Knit underwear (exclusive of rayon).
- 34-31. Bag, case, and strap leather.
- 35-49. Hardwood plywood.
- 36-33. Fourdrinier wire cloth.
- 37-31. Steel bone plates and screws.
- 38-32. Hospital rubber sheeting.
- 39-37. (Withdrawn.)
- 40-32. Surgeons' rubber gloves.
- 41-32. Surgeons' latex gloves.
- 42-49. Structural fiber insulating board.
- 43-32. Grading of sulphonated oils.
- 44-32. Apple wraps.
- 45-48. Douglas fir plywood.
- 46-49. Hosiery lengths and sizes.
- 47-34. Marking of gold-filled and rolled-gold-plate articles other than watchcases.
- 48-40. Domestic burners for Pennsylvania anthracite (underfeed type).
- 49-34. Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
- 50-34. Binders' board for bookbinding and other purposes.
- 51-35. Marking articles made of silver in combination with gold.
- 52-35. Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
- 53-35. Colors and finishes for cast stone.
- 54-35. Mattresses for hospitals.
- 55-35. Mattresses for institutions.
- 56-49. Oak flooring.
- 57-40. Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings.
- 58-36. Woven elastic fabrics for use in overalls (overall elastic webbing).
- 59-44. Textiles—testing and reporting.
- 60-48. Hardwood dimension lumber.
- 61-51. Venetian blinds (grade A, custom-made).
- 62-38. Colors for kitchen accessories.
- 63-38. Colors for bathroom accessories.
- 64-37. Walnut veneers.
- 65-43. Methods of analysis and of reporting fiber composition of textile products.

CS No.

- 66-38. Marking of articles made wholly or in part of platinum.
- 67-38. Marking articles made of karat gold.
- 68-38. Liquid hypochlorite disinfectant, deodorant, and germicide.
- 69-38. Pine oil disinfectant.
- 70-41. Phenolic disinfectant (emulsifying type) (published with CS71-41).
- 71-41. Phenolic disinfectant (soluble type) (published with CS70-41).
- 72-38. Household insecticide (liquid spray type).
- 73-51. Old growth Douglas fir, Sitka spruce, and western hemlock standard stock doors.
- 74-39. Solid hardwood wall paneling.
- 75-42. Automatic mechanical draft oil burners designed for domestic installations.
- 76-39. Hardwood interior trim and molding.
- 77-51. Enameled cast-iron plumbing fixtures.
- 78-40. Ground-and-polished lenses for sun glasses (published with CS79-40).
- 79-40. Blown, drawn, and dropped lenses for sun glasses (published with CS78-40).
- 80-41. Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
- 81-41. Adverse-weather lamps for vehicles (after market).
- 82-41. Inner-controlled spotlamps for vehicles (after market).
- 83-41. Clearance, marker, and identification lamps for vehicles (after market).
- 84-41. Electric tail lamps for vehicles (after market).
- 85-41. Electric license-plate lamps for vehicles (after market).
- 86-41. Electric stop lamps for vehicles (after market).
- 87-41. Red electric warning lanterns.
- 88-41. Liquid burning flares.
- 89-40. Hardwood stair treads and risers.
- 90-49. Power cranes and shovels.
- 91-41. Factory-fitted Douglas fir entrance doors.
- 92-41. Cedar, cypress, and redwood tank stock lumber.
- 93-50. Portable electric drills (exclusive of high frequency).
- 94-41. Calking lead.
- 95-41. Lead pipe.
- 96-41. Lead traps and bends.
- 97-42. Electric supplementary driving and passing lamps for vehicles (after market).
- 98-42. Artists' oil paints.
- 99-42. Gas floor furnaces—gravity circulating type.
- 100-47. Porcelain-enameled steel utensils.
- 101-43. Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.
- 102- (Reserved for "Diesel and fuel-oil engines.")
- 103-48. Rayon jacquard velour (with or without other decorative yarn).
- 104-49. Warm-air furnaces equipped with vaporizing-type oil burners.
- 105-48. Mineral wool insulation for low temperatures.
- 106-44. Boys' pajama sizes (woven fabrics).
- 107-45. (Withdrawn.)
- 108-43. Treading automobile and truck tires.
- 109-44. Solid-fuel-burning forced-air furnaces.
- 110-43. Tire repairs—vulcanized (passenger, truck, and bus tires).
- 111-43. Earthenware (vitreous-glazed) plumbing fixtures.
- 112-43. Homogeneous fiber wallboard.
- 113-51. Oil-burning floor furnaces equipped with vaporizing pot-type burners.
- 114-43. Hospital sheeting for mattress protection.
- 115-44. Porcelain-enameled tanks for domestic use.
- 116-44. Bituminized-fibre drain and sewer pipe.
- 117-49. Mineral wool insulation for heated industrial equipment.
- 118-44. Marking of jewelry and novelties of silver.
- (E)119-45. Dial indicators (for linear measurements).
- 120-48. Standard stock ponderosa pine doors.

CS No.

- 121-45. Women's slip sizes (woven fabrics).
- 122-49. Western softwood plywood.
- 123-49. Grading of diamond powder.
- (E)124-45.¹ Master disks.
- 125-47. Prefabricated homes.
- 126-45. Tank-mounted air compressors.
- 127-45. Self-contained mechanically refrigerated drinking water coolers.
- 128-49. Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
- 129-47. Materials for safety wearing apparel.
- 130-46. Color materials for art education in schools.
- 131-46. Industrial mineral wool products, all types—testing and reporting.
- 132-46. Hardware cloth.
- 133-46. Woven wire netting.
- 134-46. Cast aluminum cooking utensils (metal composition).
- 135-46. Men's shirt sizes (exclusive of work shirts).
- 136-46. Blankets for hospitals (wool, and wool and cotton).
- 137-51. Size measurements for men's and boys' shorts (woven fabrics).
- 138-49. Insect wire screening.
- 139-47. Work gloves.
- 140-47. Testing and rating convectors.
- 141-47. Sine bars, blocks, plates, and fixtures.
- 142-51. Automotive lifts.
- 143-47. Standard strength and extra strength perforated clay pipe.
- 144-47. Formed metal porcelain enameled sanitary ware.
- 145-47. Testing and rating hand-fired hot-water-supply boilers.
- 146-47. Gowns for hospital patients.
- 147-47. Colors for molded urea plastics.
- 148-50. Men's circular flat- and rib-knit rayon underwear.
- 149-48. Utility type house dress sizes.
- 150-48. Hot-rolled rail steel bars (produced from Tee-section rails).
- 151-48. Body measurements for the sizing of apparel for infants, babies, toddlers, and children (for the knit underwear industry).
- 152-48. Copper naphthenate wood-preservative (spray, brush, dip application).
- 153-48. Body measurements for the sizing of apparel for girls (for the knit underwear industry).

CS No.

- 154- . (Reserved for "Wire rope.")
- 155-50. Body measurements for the sizing of boys' apparel (knit underwear, shirts, trousers).
- 156-49. Colors for polystyrene plastics.
- 157-49. Ponderosa pine and sugar pine plywood.
- 158-49. Model forms for girls' apparel.
- 159-49. Sun-glass lenses made of ground and polished plate glass, thereafter thermally curved.
- 160-49. Wood-fiber blanket insulation (for building construction).
- 161-49. "Standard grade" hot-dipped galvanized ware (coated after fabrication).
- 162-49. Tufted bedspreads.
- 163-49. Standard stock ponderosa pine windows, sash, and screens.
- 164- . (Reserved for "Concrete mixers.")
- 165-50. Zinc naphthenate wood-preservative (spray, brush, dip application).
- 166-50. Size measurements for men's work trousers.
- 167-50. Automotive and general service copper tube.
- 168-50. Polystyrene plastic wall tiles, and adhesives for their application.
- 169-50. Galvanized ware fabricated from pregalvanized steel sheets.
- 170-50. Cotton flour-bag (sack) towels.
- 171-50. Hardwood veneered doors.
- 172-50. Brass trim for water-closet bowls, tanks, and urinals (dimensional standards).
- 173-50. Heavy-duty alpha-cellulose-filled melamine tableware.
- 174-51. 140-F dry-cleaning solvent.
- 175-51. Circular-knitted gloves and mittens.
- 176-51. Prefinished wall panels.
- 177-51. Bituminous-coated metal septic tanks (single compartment, residential).
- 178-51. Testing and rating ventilating fans (axial and propeller types).
- 179-51. Installation of attic ventilation fans in residences.
- 180-52. Model forms for boys' apparel.
- 181- . (Reserved).
- 182-51. Latex foam mattresses for hospitals.
- 183-51. Boys' trouser size measurements.
- 184-51. Steel fence posts—field and line type (produced from hot-rolled steel sections).
- 185-52. Wool felt.

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Commodity Standards Division, Office of Industry and Commerce, U. S. Department of Commerce, Washington 25, D. C.

¹ Where "(E)" precedes the CS number, it indicates an emergency commercial standard drafted under war conditions with a view toward early revision.

DEPARTMENT OF COMMERCE

National Bureau of Standards VOLUNTARY PRODUCT STANDARDS

Notice of Action on Proposed Withdrawal

In accordance with the provisions of § 10.12 of the Department's published "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10, as amended; 35 F.R. 8349 dated May 28, 1970), notice is hereby given of the withdrawal of the 36 commercial standards (CS) and 25 simplified practice recommendations (SPR) identified below. Each of these standards has been found to be obsolete, no longer technically adequate, no longer generally acceptable to and used by the industry, inconsistent with established policy, or otherwise inappropriate, and revision is not feasible or would serve no useful purpose.

- CS 14-51 Boys' sport and dress shirt (woven fabrics) size measurements.
- CS 33-43 Knit underwear (exclusive of rayon).
- CS 56-60 Strip oak flooring.
- CS 70-41 Phenolic disinfectant (emulsifying type).
- CS 71-41 Phenolic disinfectant (soluble type).
- CS 90-58 Power cranes and shovels.
- CS 101-63 Flue-connected oil-burning space heaters and recessed heaters with vaporizing pot-type burners.
- CS 104-63 Warm-air furnaces equipped with vaporizing-type oil burners.
- CS 106-57 Boys' pajama sizes (woven fabrics).
- CS 109-44 Solid-fuel-burning forced-air furnaces.
- CS 111-43 Earthenware (vitreous-glazed) plumbing fixtures.
- CS 113-63 Oil-burning floor furnaces equipped with vaporizing pot-type burners.
- CS 128-52 Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
- CS 129-47 Materials for safety wearing apparel.
- CS 131-46 Industrial mineral wool products, all types—testing and reporting.
- CS 134-46 Cast aluminum cooking utensils (metal composition).
- CS 135-46 Men's shirt sizes (exclusive of work shirts).
- CS 145-47 Testing and rating hand-fired hot water supply boilers.
- CS 152-48 Copper naphthenate wood preservative (spray, brush, dip applications).
- CS 158-49 Model forms for girls' apparel.
- CS-165-50 Zinc naphthenate wood preservative (spray, brush, dip applications).
- CS 174-41 140-F drycleaning solvent.
- CS 177-62 Bituminous-coated metal septic tanks (residential).
- CS 178-51 Testing and rating ventilating fans (axial and propeller types).
- CS 180-52 Model forms for boys' apparel.
- CS 183-51 Boys' trouser size measurements.
- CS 185-52 Wool felt.
- CS 186-52 Boys' sport outerwear size measurements.
- CS 195-60 Warm-air furnace burner units equipped with pressure-atomizing or rotary type oil burners.
- CS 196-55 Model forms for toddlers' and children's apparel.

- CS 198-55 Infants', children's, girls' and boys' knit underwear (exclusive of rayon, acetate, and nylon).
- CS 216-58 Asphalt insulating siding.
- CS 235-61 Pressure treated wood fence posts (with oil-type preservatives).
- CS 249-62 Pressure-treated Douglas fir marine piles.
- CS 250-62 Pressure-treated southern pine marine piles.
- CS 271-65 Grading of abrasive grain for grinding wheels.
- SPR 17-47 Heavy forged hand tools.
- SPR 44-49 Boxboard thicknesses.
- SPR 60-55 Machine, carriage and lag bolts, and nuts (case quantity and gross weight).
- SPR 72-27 Solid section steel windows.
- SPR 77-45 Hickory handles.
- SPR 100-47 Welded chain.
- SPR 125-31 Waxed tissue paper.
- SPR 136-32 Flax and hemp twine.
- SPR 147-42 Wire diameters for mineral aggregate production screens.
- SPR 157-50 Steel firebox boilers and steel heating boilers (commercial and residential).
- SPR 168-37 Braided shoe laces.
- SPR 180-41 Copper conductors for building purposes.
- SPR 183-46 Brass or bronze valves (gate, globe, angle, and check).
- SPR 184-47 Iron valves (gate, globe, angle, and check).
- SPR 185-47 Pipe fittings (gray cast-iron, malleable iron, and brass or bronze).
- SPR 190-42 Stove pipe and accessories.
- SPR 198-50 Wire rope.
- SPR 207-60 Pipes, ducts and fittings for warm air heating and air-conditioning systems.
- SPR 214-55 Metal-cutting band saws (hard edge flexible back).
- SPR 220-46 Open-end and box wrenches.
- SPR 227-47 Plumbing fixture fittings and trim for housing.
- SPR 229-63 Vises (machinists' and other bench-mounted vises).
- SPR 238-50 Convectors.
- SPR 245-51 Weldless chain and chain products.
- SPR 259-56 Hexagon-head cap screws (case quantity and gross weight).

Public notice of the intention to withdraw these standards was published in the **FEDERAL REGISTER** on June 21, 1972 (37 F.R. 12248), and a 45-day period was provided for the submission of comments or objections concerning the proposed withdrawal of any of these standards. No valid objections to the withdrawal of any of these standards have been received by the National Bureau of Standards.

The effective date for the withdrawal of these standards will be 60 days after the publication of this notice. This withdrawal action terminates the authority to refer to these standards as voluntary product standards developed under the Department of Commerce Procedures.

LAWRENCE M. KUSHNER,
Acting Director.

AUGUST 18, 1972.

[FR Doc.72-14465 Filed 8-23-72; 8:57 am]

Printed from

FEDERAL REGISTER, VOL. 37, NO. 165—THURSDAY, AUGUST 24, 1972